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to be held in a nearby church whose good people kindly tendered it for the purpose.

It is a joy to say that the music at these entertainments was furnished by the school orchestra and the refreshments were furnished by the cooking class which had been at work in Mrs. Brown's model kitchen.

In the early spring a special committee on improvement got to work and planted flowers about the yard and made it the prettiest place in all that part of the country.

The whole neighborhood felt the inspiration of that bright little woman who went to work with hope, ambition, common sense, and enthusiasm. At last a teacher had been found that suited the people and they were determined to keep her.

At the close of the school the school committee sat on the little rostrum in all the serious pomp and dignity of a well satisfied body. Just before the benediction was pronounced by one of the local pastors, the chairman rose, expressed the thanks of the committee and patrons for the successful year just closing, and on behalf of the patrons presented the dear little lady with a pretty gold-handled parasol and announced that her salary for the next year would be increased twenty-five dollars a month. He was followed by a young lawyer who, on behalf of the school, presented to her a set of Shakespeare's works and in the course of his presentation speech said some mighty complimentary things about her work with the boys and girls of the community.

The blushing little teacher, in pretty and becoming embarrassment, expressed her thanks and declared that her work in this school had been the happiest she had ever done and that she would ever hold everybody in the community in dearest esteem.

So far as the exercises were concerned, here was a community thoroughly satisfied with its teacher, and here was a teacher who was willing to serve the community forever.

Few knew it but there were already forces at work, which, if they were not checked, would wreck the bright prospects of public education in that part of the country. Just when we think that everything is moving harmoniously in school work, some person is too often starting a movement which will ruin the brightest prospects. There was one out in the apparently satisfied audience who was going to give trouble and yet you can hardly believe it. Like a bolt from a clear sky the news came three weeks after the school closed so auspiciously that the teacher would not return next year, that she had married an old sweetheart "back up yonder where she came from," a new teacher had to be found, and the whole educational sentiment in the community had to be worked up afresh.

There ought to be some law against breaking up schools in this way, but there will never be such a law.

To our little teacher's credit, be it said, she came down to the school next fall when it opened and helped the new teacher start off and then went back to her new home, and, for all I know, she is there yet.

THE TEACHING OF GEOGRAPHY IN THE HIGH SCHOOL*

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"GEOGRAPHY is notoriously the most poorly taught subject in our schools, both lower and upper," is the cry that comes from all parts of this broad land. The reason for this deplorable state is threefold:

(1) The general lack of any geographical training in the teachers of geography, who have been drilled well-nigh to death in the *method* of a subject whose *content* they have never possessed.

(2) The lack of any clear idea on the part of the teacher, or the pupil, or the public, as to the real nature of geography, its scope, or its purpose.

(3) The general apathy of mankind with regard to a vast accumulation of facts which no one is competent to assimilate.

* Address as President of the North Carolina Association of Geography Teachers.

The blame for the limited knowledge of geography possessed by the average teacher lies at the door of our normal schools, our colleges and universities; but some of our older universities are not wholly blameworthy. Harvard taught geography prior to 1841, it has been taught at Princeton since 1854, Wisconsin began it in 1868, and Yale began to teach it before 1872. Geography was an elective study at the University of North Carolina in 1795; a course in physiography was offered to freshmen in 1892, and a senior elective in this subject has been a popular course in the University for nearly a score of years, while two courses in the geography of commerce and industry have been taken through the present decade by a steadily increasing number of seniors. During the coming school year the University of North Caro-

lina will offer elementary courses in this subject in its new School of Commerce, while the advanced courses followed for the past several years will be open to seniors in the same school. During this present summer 47 institutions of higher learning are giving 175 courses in geography.

"Knowledge is now no more a fountain sealed!"

The second hindrance to the proper teaching of geography, namely the lack of any clear idea as to its scope and purpose, is stanchioned rather than undermined by the glittering generality that "Geography is the study of the earth as the home of man," and the teacher loses her way in a labyrinth of methods tributary to this idea, or is landed in a slough of despond. Now that the idea of cause and effect is growing in importance, she is beginning to see her way out. So long ago as the last quarter of the sixteenth century, the philosopher Kepler, metaphysician and mathematician, astronomer and astrologer as well, forecaster of horoscopes and weather prognosticator, taught that the earth was a living, moving being; and we may accept, at least tentatively, Fairbanks's definition of geography as *the science which seeks to understand the world as a living organism*. The late Professor Shaler led his students to a conception of the earth, if not as an organism, at least as a member of a family of worlds, as a mechanism which has had a history, whose working out is the province of geology.

The third cause of poor teaching, the general apathy of mankind with regard to geographic knowledge during the past decade, is due, as von Engelmann has pointed out, to the fact that the period of thrilling world explorations, of the Stanleys, and even of the Pearys, has passed. But already the war and its results have done away with this indifference, and teachers must take stock of their equipment, review their purposes, and renew their energies. World commerce is entering upon a new era of expansion, and "leading publicists, financiers, and business men with a broad outlook are already alive to the situation." The geography of commerce and industry has at once taken its place as essential to business training or to a liberal education.

THE PURPOSE OF A GEOGRAPHY COURSE—TRAINING FOR SERVICE

The study of the earth sciences is designed not merely to give the pupil a knowledge of facts regarding the earth, but to give him some insight into the laws of nature, and to train him in such a way in field observation and laboratory practice as to fit him for

effective service in whatever field of labor he may find himself.

It is the same old story with all effective education, which comes through seeing, thinking, doing. No other subject serves this purpose so completely as geography, which Herbart has called the associating science.

The common American greeting, "How do you do?" should bring teachers to a realization of the demand of the land and the times for education through doing and education for doing; and geography in its various aspects has more relations to human activity than any other study in the curriculum. Its intimate connection with history, was long ago recognized; and all of us are what we are largely because we are where we are. But nature does not compel man; she offers him a choice, and it is in the presentation of certain conditions from which man may choose that geography exerts control. Indeed, man, through a knowledge of his surroundings, may gain a mastery over nature, or he may best adapt himself to his environment by co-operating with nature. That education is best which gives one this power.

PHYSICAL GEOGRAPHY DEFINED*

It is only within recent years that geography could properly be called a science, consisting a generation ago of little more than a bald "description of the earth, its phenomena, its countries, and its inhabitants." Then physical geography had a fairly well recognized field of knowledge, not clearly delimited it is true, and having to do chiefly with nature's more spectacular phases, volcanoes, earthquakes, tides, tornadoes, glaciers, races of men, but dealing in nowise in a satisfactory way with the causes or effects of these physical features and phenomena. The knowledge it presented was well worth having, and much of it is too often overlooked in our elementary work today; but its methods are now open to criticism.

From being a mere description of the earth, geography today includes not only the phenomena pertaining thereto, but their areal distribution, and the causes therefor. This phase of geography had its origin in America, and began in the energetic study of topographic forms, involving their genesis and classification. This new science became known as physiography, a name borrowed from England, where the term is still used in its etymological sense, and includes the whole realm of nature.

With the rebirth of physiography came the intro-

*The greater part of the address from this point was published by Professor Cobb as Chapter IX of the *North Carolina Handbook for High School Teachers*, 1910.

duction into it of the laboratory method of teaching, thus putting it on the same basis as other physical sciences. Today both physical geography and physiography (a name used in England in a somewhat different sense), are clearly recognized as distinct phases of earth science, and of very unequal difficulty; physical geography should be taught to all pupils as the geographic course preceding the high school, or in the first year of the high school; physiography is to be offered toward the close of the high school course. Advanced physiography is distinctly a university study.

The confusing of two ideas and the effort to adapt the more specialized course to young pupils who need a broad, interesting unspecialized introduction to earth science, has deprived the pupil in the grammar grades of an interesting study and a distinctive stimulus to the imagination, which President Eliot has spoken of as the greatest of human powers no matter in what field it works. True, advanced physiography demands a well-ordered imagination in the university student, which does not come at his bidding unless he has had proper training in the grammar grades; but the subject as taught in the colleges is powerless to develop this imagination in the younger pupils of the schools.

PRESENTATION OF THE SUBJECT

In presenting the subject of physical geography, the teacher should have constantly in mind that he is training the pupil for life, for a proper appreciation and understanding of his surroundings, rather than fitting him for college. He should bring himself to a realization of the meaning and scope of his subject, dealing with real things, and touching life at every point. Physical geography is coming more and more to be the study of the earth in relation to life; and the earth is to be looked upon as a field for the development of organic life, as a theater for its activities.

Mackinder, of Oxford, has defined geography as a study of the present in the light of the past. When thus conceived it forms a fitting complement to geology, which, as defined by the same author, is a study of the past in the light of the present. The studies are inseparable, and, up to a certain point, their physical aspects may be well followed together under some such name as physiography. (Davis.)

But geology is the science which investigates the history of the earth, and the rocks of the earth's crust contain the records of this history. Geological study shows, too, that forces similar to those of the present have been operating in the past, and most naturalists believe that they are sufficient, given ample time, to account for all the changes that have taken place in

the earth's crust. But geography is only geology in the making. It is to geology what the daily newspaper is to history.

STUDYING THE MATERIALS OF THE EARTH'S CRUST

There is no reason, then, for deferring until the college years the study of common rocks. The child, even in the kindergarten, may gain a speaking acquaintance with them, may know them when he meets them in the road. The characters by which they may be recognized, and something of their history, he may learn by direct observation and simple experiment. To let a single example suffice: he may learn readily that sandstone is simply grains of sand cemented together, and the size and shape of the grains as well as the nature of the cement he may discover for himself, if the teacher will direct as well as guide the pupil's interest. Similarly, the child should learn at first hand something of plants and of animals.

Now all of this may not be physiography, but it does lie at the very foundation of the study of physical geography, and is within the comprehension of the children in the grammar grades, certainly within the comprehension of pupils in the first year of the high school.

FIELD WORK

The larger physiographic processes, requiring direct observation out of doors and on a larger scale than the laboratory study of rocks, are a little more difficult; but the processes of weathering, the protective or destructive work of plants, of earth-worms, of ants, of the wind, the work of frost, may all be noted in any neighborhood. The teacher may not go very far afield with his pupils, but an interest in regional geography may be developed and lead to valuable results in a department of geography just now too much neglected.

All this leads to a knowledge of the simpler facts of physical geography, of which there is such widespread ignorance, even among persons otherwise well educated, that the French geologist De Launay recently published an article in *La Nature* (Paris, June 25, 1909), calling attention to the inexcusable ignorance of these subjects shown by authors of renown, and often even where their departments of learning demanded such elementary knowledge. De Launay calls it geology, but it is just as truly physical geography.

The effort made a few years ago to write physiography down to the comprehension of our public school pupils well-nigh destroyed the interest in physical geography. In consequence of this there is now a strong tendency to return to the plan of giving "a

broad, unspecialized but vivid course in physical geography." Such a course is already represented in our schools, but it needs to be brought more in accord with modern needs and modern scientific methods. It is with the problems of such a course that we are immediately concerned.

The choice of subject matter, the topics to be treated in this introduction to earth science, may be regarded as an open question. "If the subject matter now given in physical geography be ranged in the order of difficulty beginning with the easiest, it would probably divide itself somewhat as follows: (1) common rocks and simple dynamics, subject to direct observation and experiment; (2) unobserved but spectacular forms and processes, the descriptive material such as constituted the bulk of physical geography twenty years ago; (3) genesis and classification of land forms." (Fenneman.)

COMMON MINERALS AND ROCKS

"The subject of common minerals and rocks is not only relatively easy of comprehension, but calculated to hold the interest of children. The subject is eminently concrete and needs little imagination. The facts need pointing out rather than explaining." A number of years ago (1883-'84) the writer gave a course in the common minerals and rocks to seventh and eighth grade pupils in the Wilson Graded School who took the course with enthusiasm, and made and cared for a fine collection of the common minerals and rocks of the county, a county not supposed to possess any minerals. Crosby's *Common Minerals and Rocks* (60 cents) was used in connection with the study. Though now decidedly out of date, this little book is still the best for the pupil's use; but the teacher should make constant use of such a manual as Pirsson's *Rocks and Rock Minerals* (\$2.50). The subject is far simpler and easier than the systematic study of land forms, and is certainly adapted to younger minds.

GEOGRAPHIC PROCESSES

I cannot do better than to quote again from Professor Fenneman: "Probably a little more difficult than the study of rocks is that of those processes which may be subject to direct observation or experimentation. It is assumed here that, in the main, each process can be watched while it makes appreciable progress, as, for example, evaporation, or the solution of limestone in water carbonated by the breath, or transportation along a beach; or the process, if not watched, may be one which appeals to the imagination as a single act, as the breaking of a rock by frost; or one whose evidences are vividly concrete as the oxidation

of a rock with change of color. Of this nature are most of the weathering processes. Consider the natural sand blast, the making of caves, the work of plant roots, of earth worms, etc.; the issuance of spring waters, etc.; the rounding of stones and the production of sand and mud by attrition; the undercutting of stream banks; transportation in solution, in suspension and at the bottom of the streams, etc. All these and many others are so simple that they need pointing out rather than explaining, and once consciously observed, they will offer a constant allure-ment to the observation of natural processes, preparing the mind for more technical studies. * * * It is certainly easier than the study of land forms, and fitted to interest younger minds. The strain on the imagination begins when the topographic effects of these processes are considered. That much of this study of processes is commonly called geology, and left to be taught under that name, can not be considered as a matter of weight."

BOOKS AND APPLIANCES

The Maury's *Physical Geography* of the seventies presented in a way unsurpassed in its time the kind of descriptive geography best suited for informing the pupil of the world about him and stimulating his imagination. The earth as a planet, the air, the ocean, and the land, the life and products of the earth, with their geographic distribution and physical relations, all recognized today as the principal themes of a well-ordered geography course, received there a treatment stimulating to the pupil and fully in accord with the best knowledge and pedagogical methods of the last generation. The pity is that such an admirable book has been revised out of existence in an effort to incorporate in it material and methods properly belonging to a college course, and just beyond the reach of the average high school pupil. It is fortunate for the pupil entering on this part of the study if his grammar school work has been done with some such book as Frye's *Complete Geography*, or the *Natural Advanced Geography*, or Redway and Hinman or the Tarr and McMurray geographies. But a suitable book for the course in physical geography here outlined has yet to be written; and this is doubtless best for the teacher, as it forces him to go to original sources of information, to geographical journals, and to the discussions of men actively engaged in geographical investigation and instruction.

The genesis and classification of land forms is a far more difficult subject. An acquaintance with the common rocks and some knowledge of nature's processes

gained by first-hand study will gradually lead the pupil to trust his own eyes "in matters where process is revealed by form, as when the under-cutting of a cliff is revealed by its steepness, or the splitting of a ledge by frost is known by the presence of a talus, or the weathering of a limestone is shown by a yellow shell surrounding a blue interior. It is easy to find many illustrations in almost every locality. It is practicable to bring indoors many specimens to be used in a similar way, and when a start is thus obtained by observing nature itself, pictures may be used for the same purpose." (Fenneman.)

Then the better known land areas may be described in accordance with the knowledge thus gained at first hand under the guidance of a skillful teacher; or if the course is given in one year, this work had best be confined to our own continental area. Some attention should be given to modeling and map drawing. The proper use of topographic maps should be learned. The little book on *Governmental Maps*, by Davis, King and Collie, will be a great help with this part of the work. Professional Paper No. 60, of the U. S. Geological Survey, on *The Interpretation of Topographic Maps* is indispensable to the teacher, and may be purchased from the Superintendent of Documents at Washington. *Map Making and Map Reading*, by Robert M. Brown, in the *Journal of Geography*, February, 1904, will be found very helpful. The brief and excellent descriptions of the maps published by the U. S. Geological Survey (furnished monthly by the Survey), must remain a dead letter to the teacher who has no knowledge of the genesis of topographic forms. Goode's Sun Board is a simple instrument which is invaluable to the teacher who would make geography something real to his pupils. It may be used for a variety of purposes, among them to establish the true meridian of the observer and to determine his latitude. It is manufactured by the Central Scientific Company of Chicago, and sold by them for \$12 net.

Enough practical use should be made of the weather maps furnished by the government to give the pupil an understanding of the general principles of weather changes and forecasts. Davis's *Practical Exercises in Physical Geography* is a valuable little book. But the teacher, having thoroughly acquainted himself with his subject, must work out his own methods in the field and laboratory. The best books are full of excellent illustrations, and they also furnish many references to the literature of the several subjects. Fairbanks's *Practical Physiography* is especially worthy of note on account of its illustrations, and there is nothing more stimulating than his articles in the *Journal of Geography*.

The teacher should own a copy of Salisbury's *Physiography*. He should, of course, be a subscriber to such a periodical as the *Journal of Geography* (New York, \$1), and can get much help with the second part of the course from the *National Geographic Magazine* (Washington, D. C., \$2.50). He should own some standard text-book of geology. LeConte's *Elements of Geology* (\$4) presents the subject in the most attractive way, but it has not been kept fully abreast of geological progress. The *College Geology* of Chamberlin and Salisbury (\$3.50) is very valuable, and every geography teacher should begin his professional library with *The New Basis of Geography* (\$1.50), by Jaques W. Redway. A suggestive book for the teacher is Sutherland's *The Teaching of Geography*, and every teacher should own a copy of Hodge's *Nature Study and Life* (Ginn & Co.).

Above all, the teacher should prepare himself to teach such a course. He may get much help by attending a good summer school where physical geography is taught. He will find a magic lantern an invaluable aid in his work.

The best of the slide makers will lend you, without charge, colored lantern slides arranged in lecture sets for entertainments, and by the use of these the class may raise money for the purchase of slides.

Textbook illustrations should be supplemented by diagrams, photographs, lantern slides, etc., and should be further enforced by frequent trips to points of interest out of doors. A noted geographer once said, "Wherever home is there lie all the materials which are needed for the study of the entire globe." Is such a course as that here indicated possible in the high schools of North Carolina? Clearly, yes; but we can not come to it immediately, but must work up to it carefully and by degrees.

AIMS AND VALUES IN EDUCATION

The central theme running through the program of the North Carolina Teachers' Assembly this year is: "Aims and Values in Education"—a theme that is as old as all educational effort, and yet is ever new. It is broad enough to include the most general discussion of any phase of educational endeavor, and yet is definite enough to apply to the methods or results of the most scholarly piece of scientific investigation as well as to the minutest detail of school room practice. And, too, it is important enough not only to engage the best thinking of the teaching profession, but to challenge also the best thought of the nation's statesmanship.—N. W. W.